



**City of Bellevue
Development Services Department
Land Use Staff Report**

Proposal Name: Dozhuk Single Family Home

Proposal Address: 6031 174th Avenue SE

Proposal Description: The applicant requests a Critical Areas Land Use Permit to construct a private sewer connection serving a new house. The sewer is proposed to be bored underground to avoid a Type-N Stream but will have bore pits that will temporarily disturb a 15-foot structure setback from the wetland and stream buffer on the property. House construction will also cause temporary disturbance of a stream buffer structure setback.


File Number: 16-135431-LO

Applicant: Daniil Dozhuk

Decisions Included Critical Areas Land Use Permit
(Process II. 20.30P)

Planner: Reilly Pittman, Land Use Planner

**State Environmental Policy Act
Threshold Determination:** **Exempt**

Director's Decision: **Approval with Conditions**
Michael A. Brennan, Director
Development Services Department
By: 
Carol V. Helland, Land Use Director

Application Date: June 23, 2016
Notice of Application Date: August 4, 2016
Decision Publication Date: February 9, 2017
Project Appeal Deadline: February 23, 2017

For information on how to appeal a proposal, visit Development Services Center at City Hall or call (425) 452-6800. Appeal of the Critical Areas Land Use Permit decision must be received in the City's Clerk's Office by 5 PM on the date noted for appeal of the decision.

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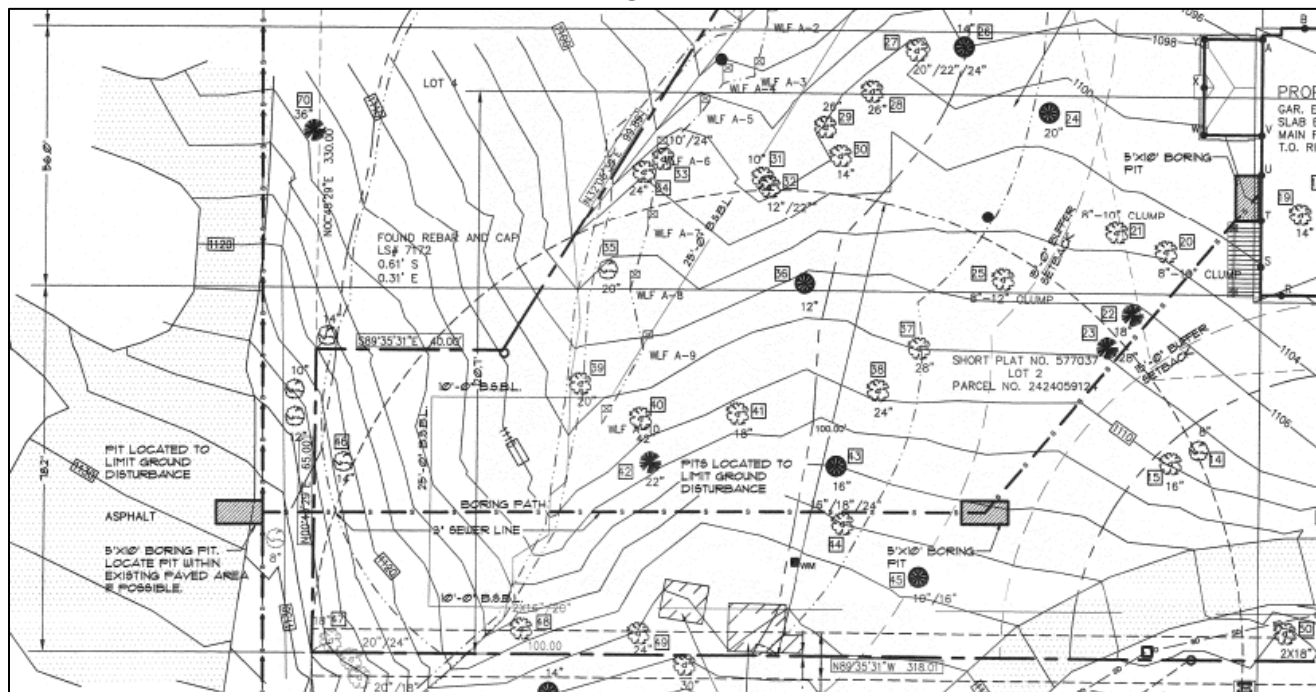
Attachments

1. Site Plan – Enclosed
2. Critical Areas Report, Stream and Wetland Rating Forms, and Narrative – In File
3. Conditioned Site Plan – Enclosed
4. Public Comments – In File
5. City Attorney and Staff Comment Response Letters – In File
6. Critical Areas Planting Templates – Enclosed
7. Application Forms, SEPA Checklist, Survey – In File

I. Proposal Description

The applicant is requesting a Critical Areas Land Use Permit to bore a proposed sewer line underground with bore pits located in the 15-foot structure setbacks from a Type-N stream buffer and a Category III wetland buffer. The original proposal was to install the sewer line by trenching through the wetland and stream buffers and crossing the Type-N stream on-site. To avoid impacts and respond to public comments, the plans were revised to install the sewer line by boring it underground which avoids direct impact to the stream, wetland and associated buffer. The revised project will result in temporary impact from the bore pits that are required to enable the bore to change direction. Some disturbance of a structure setback is also proposed to construct the house. These areas of temporary disturbance are required to be restored back to the preexisting condition with native vegetation. Disturbance of a structure setback requires approval of a Critical Areas Land Use Permit. See figure 1 for the proposed bore path and attachment 1 for site plan.

Figure 1



II. Site Description, Zoning, Land Use and Critical Areas

A. Site Description

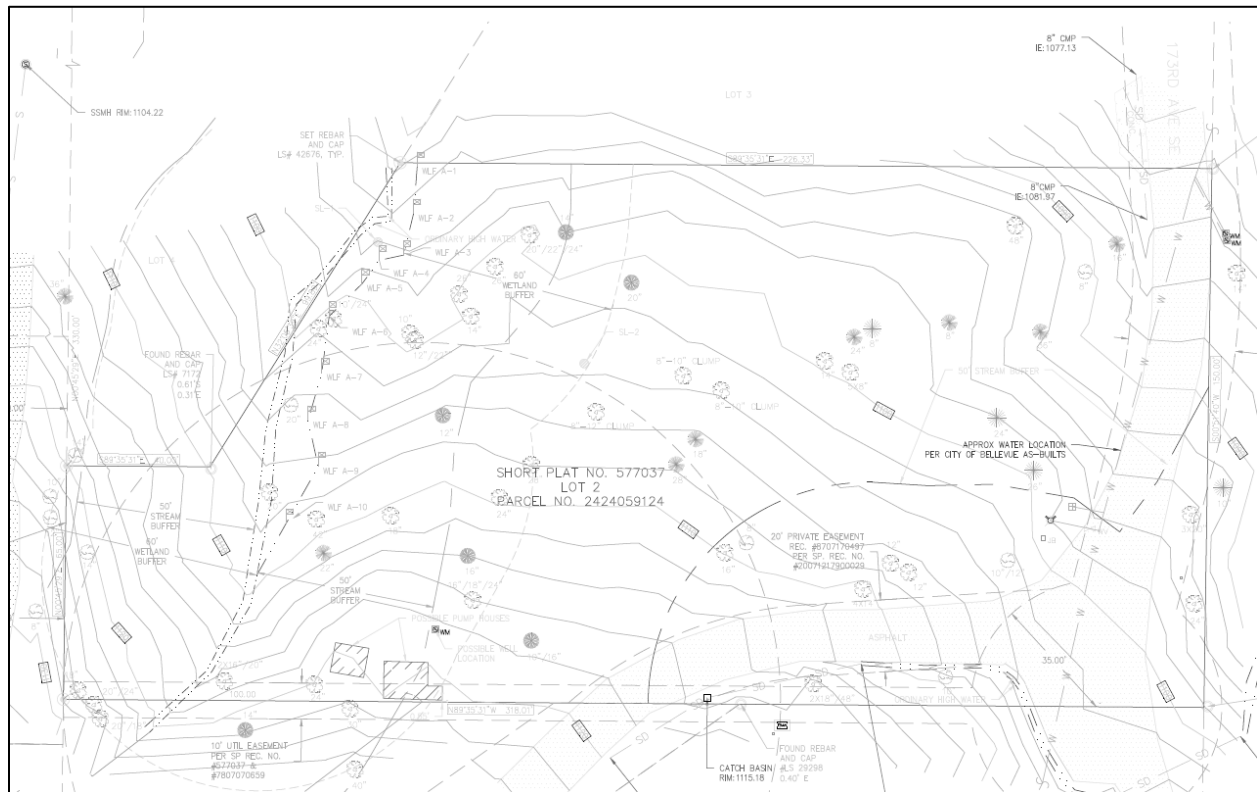
The property is located at 6031 174th Ave SE and is located in the Newcastle subarea. Access to the property is obtained from 174th Ave SE found along the east property line, which is a private road easement and connects to SE 60th Street to the north. Another private road easement, 173rd Ave SE is along the west property line but it does not provide vehicle access to this lot. Developed single-family properties surround the property which is undeveloped. See figure 2 below for existing site and vicinity.

Figure 2



A type N stream, flows from south to north on the western portion of the lot. A category III wetland was identified along the east bank of the stream. Another type N stream was identified on the southeast corner of the property. See figure 3 below for critical areas and buffers and attachment 2 for critical areas reports and information.

Figure 3



B. Zoning

The property is zoned R-1, Single-Family Residential. The proposed work is permitted in this zoning district.

C. Land Use Context

The property has a Comprehensive Plan Land Use Designation of SF-L, Single-Family Low Density. The proposed use will be a residential home which is consistent with this Land Use designation.

D. Critical Areas On-Site and Regulations

i. Wetlands

Wetlands provide important functions and values for both the human and biological environment—these functions include flood control, water quality improvement, and nutrient production. These “functions and values” to both the environment and the citizens of Bellevue depend on their size and location within a basin, as well as their diversity and quality. While Bellevue’s wetlands provides various beneficial functions, not all wetlands perform all functions, nor do they perform all functions equally well (Novitski et al., 1995). However, the combined effect of functional processes of wetlands within basins provides benefits to both natural and human environments. For example, wetlands provide significant stormwater control, even if they are degraded and comprise only a small percentage of area within a basin.

ii. Streams and Riparian Areas

Streams are classified into four types, based on their flow and capacity to support fish. Artificial channels (e.g., ditches) are generally not protected, unless they are used by salmonids or convey a stream that previously occurred naturally in that location.

Stream needs healthy riparian areas along its banks and floodplain. Riparian vegetation provides shade, which protects water quality; retains soil, which prevents erosion that can affect salmon spawning and feeding areas; holds back flood flows; and provides wildlife habitat and the large woody debris that stores sediments, slows flood velocities, and creates good fish habitat.

iii. Habitat

Urbanization, the increase in human settlement density and associated intensification of land use, has a profound and lasting effect on the natural environment and wildlife habitat (McKinney 2002, Blair 2004, Marzluff 2005, Munns 2006), is a major cause of native species local extinctions (Czech et al 2000), and is likely to become the primary cause of extinctions in the coming century (Marzluff et al. 2001a). Cities are typically located along rivers, on coastlines, or near large bodies of water. The associated floodplains and riparian systems make up a relatively small percentage of land cover in the western United States, yet they provide habitat for rich wildlife communities (Knopf et al. 1988), which in turn provide a source for urban habitat patches or reserves. Consequently, urban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development (Blair 1999, Marzluff 2005). Protected wild areas alone cannot be depended on to conserve wildlife species. Impacts from catastrophic events, environmental changes, and evolutionary processes (genetic drift, inbreeding, colonization) can be magnified when a taxonomic group or unit is confined to a specific area, and no one area or group of areas is likely to support the biological processes necessary to maintain biodiversity over a range of geographic scales (Shaughnessy and O'Neil 2001). As well, typological approaches to taxonomy or the use of indicators present the risk that evolutionary potential will be lost when depending on reserves for preservation (Rojas 2007). Urban habitat is a vital link in the process of wildlife conservation in the U.S.

III. Consistency with Land Use Code Requirements:

A. Zoning District Dimensional Requirements:

Based on the plans submitted, the proposed construction appears to meet the zoning dimensional standards for the R-1 zone found in LUC 20.20.010. Conformance with zoning requirements will be confirmed as part of the plan review under the building permit application. **See Conditions of Approval in Section X of this report.**

B. Critical Areas Requirements LUC 20.25H:

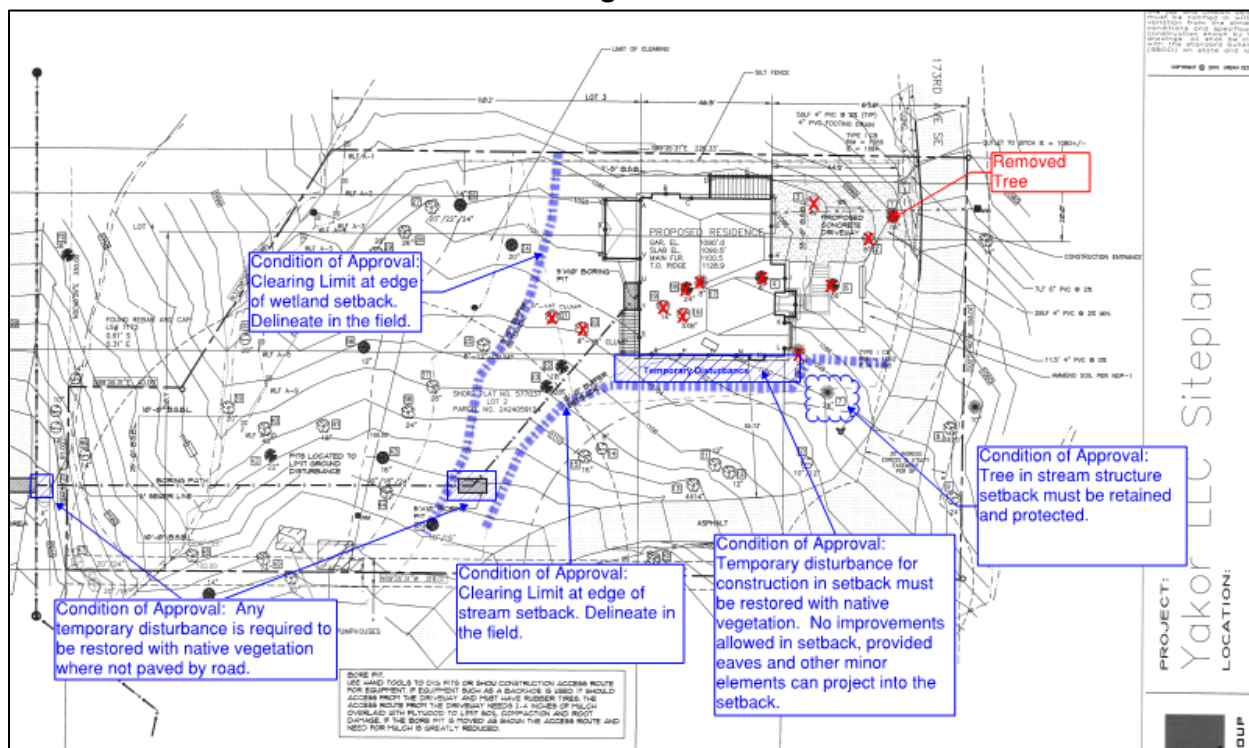
The City of Bellevue Land Use Code Critical Areas Overlay District (LUC 20.25H) establishes performance standards and procedures that apply to development on any site which contains in whole or in part any portion designated as critical area, critical area buffer or structure

setback from a critical area or buffer. The project will cause temporary disturbance of a 15-foot stream buffer and 15-foot wetland buffer structure setback. The proposed temporary disturbance of a structure setback requires approval of a Critical Areas Land Use Permit per LUC 20.25H.010.

Based on staff comments to avoid impacts, the applicant revised the proposed sewer to be bored underground and located the necessary bore pits outside of the critical areas and buffers. The proposal almost entirely avoids any impact but does result in some disturbance of the structure setbacks from the wetland and stream buffers on-site. No tree removal is proposed and only minor disturbance of vegetation is anticipated in the area of the bore pits and construction on the south façade of the house which abuts a stream buffer structure setback. Tree number 7 shown on the site plan is within the structure setback from the buffer of the stream south of the house and is required to be retained. **See Conditions of Approval in Section X of this report.**

No permanent buffer or structure setback modification is proposed and any areas of temporary disturbance are required to be restored. The applicant has chosen to select plants from the City's planting templates to restore the area of disturbance that will result from the construction. The plan submitted under the building permit shall include a list of plant species proposed and the quantity that will be installed. Based on the potential areas of disturbance at least 18 shrubs at six foot spacing and 200 ground covers at two foot spacing may be needed. If any sewer apparatus or clean outs are proposed that will disturb the surface this planting must be relocated around it. See figure 4 below for conditions and attachment 3. **See Conditions of Approval in Section X of this report.**

Figure 4



Based on review the project is in conformance with the performance standards for development on sites with wetlands found in LUC 20.25H.100. No lights, activities, drainage, or use of pesticides and fertilizers is proposed in or near the wetland on-site. Drainage on-site is directed toward 174th Avenue SE and given there is a wellhead and wetland the ability for infiltration is limited. If drainage from impervious surfaces does enter the wetland buffer it will be treated per Utilities code requirements. The edge of the buffer of the wetland is currently densely vegetated and that condition is not being changed by this project. Restoration planting is proposed in the wetland setback at the edge of the buffer which will add additional vegetation.

IV. Public Notice and Comment

Application Date:	June 23, 2016
Public Notice (500 feet):	August 4, 2016
Minimum Comment Period:	August 18, 2016

The Notice of Application for this project was published in the City of Bellevue weekly permit bulletin and Seattle Times on August 4, 2016. It was mailed to property owners within 500 feet of the project site. Comments were received from neighbors to the west of the property and their attorneys which can be found as attachment 4.

Summary of the comments received:

- Concern regarding the City's right to grant approval to the applicant to connect to the sewer easement under 173rd Avenue SE, which is west of the subject site. The City should require the applicant to connect to the sewer easement in 174th Avenue SE.
- Reported animal use of the property and surrounding properties and questioned the proposal to trench the sewer across the stream and disturb the riparian corridor.

The comments were responded to as follows:

- The Utilities Department and City Attorney researched the history of the sewer easement. The City Attorney determined (attachment 5) that the applicant has the right to connect to the sewer easement in 173rd Avenue SE as the easement was granted to the public as a public utility easement per recorded easement documents. The City cannot require the applicant to construct a new sewer main in easements under 174th Avenue SE due to cost and the fact that a public easement exists in 173rd Avenue SE.
- The project plan was revised to avoid direct impact to the stream, stream buffer, and wetland buffer. The proposed sewer will be bored underground and have bore pits located slightly within the structure setbacks of the stream and wetland buffers. No trees are proposed to be removed by the sewer installation and minimal vegetation is expected to be disturbed. Native plants are required to be installed per the City's planting templates (attachment 6) to restore any area of temporary disturbance.

V. Summary of Technical Reviews

A. Clearing and Grading

The Clearing and Grading Division of the Development Services Department has reviewed the proposed site development for compliance with Clearing and Grading codes and standards. The Clearing and Grading staff approved the application.

VI. State Environmental Policy Act (SEPA)

SEPA review was originally required as the proposal would impact a type-N stream and stream buffer which are critical areas per City of Bellevue Code 22.02. However the revised project avoids impact to the stream and stream buffer entirely by boring the sewer line underground and locating the bore pits in the structure setbacks which are not critical areas. As a result, no SEPA review or determination is required for this project which is exempt per WAC 197-11-800(1) and BCC 22.02.032.D 1 and 2.

VII. Changes to Proposal Due to Staff Review

The sewer line was revised to be bored underground to avoid disturbance of the stream, stream buffer, and wetland buffer and any habitat provided by the vegetation on-site. See Conditions of Approval in Section X of this report.

VIII. Decision Criteria

A. 20.30P.140 Critical Area Land Use Permit Decision Criteria – Decision Criteria

The Director may approve, or approve with modifications an application for a Critical Area Land Use Permit if:

1. The proposal obtains all other permits required by the Land Use Code;

The applicant must obtain approval of building permit 16-136475-BS and any associated permits. See Conditions of Approval in Section X of this report.

2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;

The critical area and buffers are avoided by boring the sewer line underground and the house and improvements are located on the site to avoid any impacts to critical area and critical area buffers. Only temporary construction disturbance is proposed in the stream and wetland structure setbacks. This disturbance is required to be restored. As noted previously, tree 7 identified on the plans is required to be retained and protected. See Conditions of Approval in Section X of this report.

3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;

Performance standards are met by the proposal as it avoids almost all impact as described in Section III above.

4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;

The proposed activity will be served by adequate public facilities.

5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and

The plans submitted under the building permit must include a plant list with species and plant quantity to show what will be planted in the area of temporary disturbance. These plants can be drawn from the planting template as attachment 6. **See Conditions of Approval in Section X of this report.**

6. The proposal complies with other applicable requirements of this code.

As discussed in this report, the proposal complies with all other applicable requirements of the Land Use Code.

IX. Conclusion and Decision

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve with conditions** the proposed disturbance and restoration of the stream and wetland buffer structure setbacks to install a sewer line and construct a house.. **Approval of this Critical Areas Land Use Permit does not constitute a permit for construction. A building permit, clear and grade permit, and/or utility permit is required and all plans are subject to review for compliance with applicable City of Bellevue codes and standards.**

Note- Expiration of Approval: In accordance with LUC 20.30P.150 a Critical Areas Land Use Permit automatically expires and is void if the applicant fails to file for a building permit or other necessary development permits within one year of the effective date of the approval.

X. Conditions of Approval

The applicant shall comply with all applicable Bellevue City Codes and Ordinances including but not limited to:

<u>Applicable Ordinances</u>	<u>Contact Person</u>
Clearing and Grading Code- BCC 23.76	Janney Gwo, 425-452-6190
Land Use Code- BCC Title 20	Reilly Pittman, 425-452-4350
Noise Control- BCC 9.18	Reilly Pittman, 425-452-2973

The following conditions are imposed under the Bellevue City Code or SEPA authority referenced:

- 1. Building Permit:** Approval of this Critical Areas Land Use Permit does not constitute an approval of a construction permit. Building permit 16-136475-BS must be approved. Plans submitted as part of the permit application shall be consistent with the activity permitted under this approval.

Authority: Land Use Code 20.30P.140

Reviewer: Reilly Pittman, Development Services Department

2. Clearing Limits

The clearing limits indicated on the site plan shall not extend into the structure setbacks from the stream and wetland as shown in figure 4. The limits are required to be delineated in the field, especially in the area of the proposed bore pits. Some disturbance of the stream setback is allowed for construction of the house as shown on the conditioned plan as figure 4.

Authority: Land Use Code 20.30P.140

Reviewer: Reilly Pittman, Development Services Department

3. Sewer Line Boring

The proposed sewer line is required to be bored as proposed on the site plan, which is attachment 1, in order to avoid all impacts to the stream, wetland, and associated buffers.

Authority: Land Use Code 20.30P.140

Reviewer: Reilly Pittman, Development Services Department

4. Restoration of Temporary Disturbance

All areas of temporary disturbance in the structure setbacks from the stream and wetland buffers are required to be restored with native planting per the City's planting template as attachment 6. The final site plan approved under the associated building permit must identify the plant species selected and include at least 18 shrubs spaced at four feet on center and 200 ground covers spaced at 2 feet on center that will be installed to restore the areas of temporary disturbance.

Authority: Land Use Code 20.25H Section XI

Reviewer: Reilly Pittman, Development Services Department

5. Maintenance

The restoration planting is required to be maintained for a period of at least three years.

Authority: Land Use Code 20.25H.220

Reviewer: Reilly Pittman, Development Services Department

6. Tree Protection

Tree number seven identified on the plans is required to be retained. No trees are approved for removal within the stream or wetland setbacks or buffers resulting from the sewer installation.

Authority: Land Use Code 20.25H.055.1

Reviewer: Reilly Pittman, Development Services Department

7. Land Use Inspection: Following installation of mitigation planting, the applicant shall contact Land Use staff to inspect the planting area prior to final building inspection.

Authority: Land Use Code 20.30P.140
Reviewer: Reilly Pittman, Development Services Department

- 8. Noise Control:** Noise related to construction is exempt from the provisions of BCC 9.18 between the hours of 7 am to 6 pm Monday through Friday and 9 am to 6 pm on Saturdays, except for Federal holidays and as further defined by the Bellevue City Code. Noise emanating from construction is prohibited on Sundays or legal holidays unless expanded hours of operation are specifically authorized in advance. Requests for construction hour extension must be done in advance with submittal of a construction noise expanded exempt hours permit.

Authority: Bellevue City Code 9.18
Reviewer: Reilly Pittman, Development Services Department

AREA OF DISTURBANCE	
3,143	BUILDING W/ O.H., CANT'S
299	COV'D PATIO
79	COV'D PORCH(FRONT)
1,419	DRIVEWAY,
426	PATIO, STAIRS
5,366	TOTAL

IMPERVIOUS SURFACE:	
42,113	S.F. TOTAL Lot Area
3,143	BUILDING W/ O.H., CANT'S
299	COV'D PATIO
79	COV'D PORCH(FRONT)
1,419	DRIVEWAY,
426	PATIO, STAIRS
5,366	TOTAL
12.8%	IMPERVIOUS COVERAGE

IMPERVIOUS SURFACE CALCULATIONS INCLUDE BUT NOT LIMITED TO, THE STRUCTURE ROOF AREA, DRIVEWAYS, WALKWAYS, PATIOS ETC.)

LOT COVERAGE (structural)

2,784 S.F.	BUILDING
210 S.F.	PUMPHOUSES
299 S.F.	COV'D PATIO
161 S.F.	STAIRS ABOVE 30"
79 S.F.	COV'D PORCH(FRONT)
3,533	TOTAL

42,113 S.F.	TOTAL GROSS LOT AREA
23,341 S.F.	CRITICAL AREAS
18,772	NET LOT SQ FT
18.82%	COVERAGE BY STRUCTURES

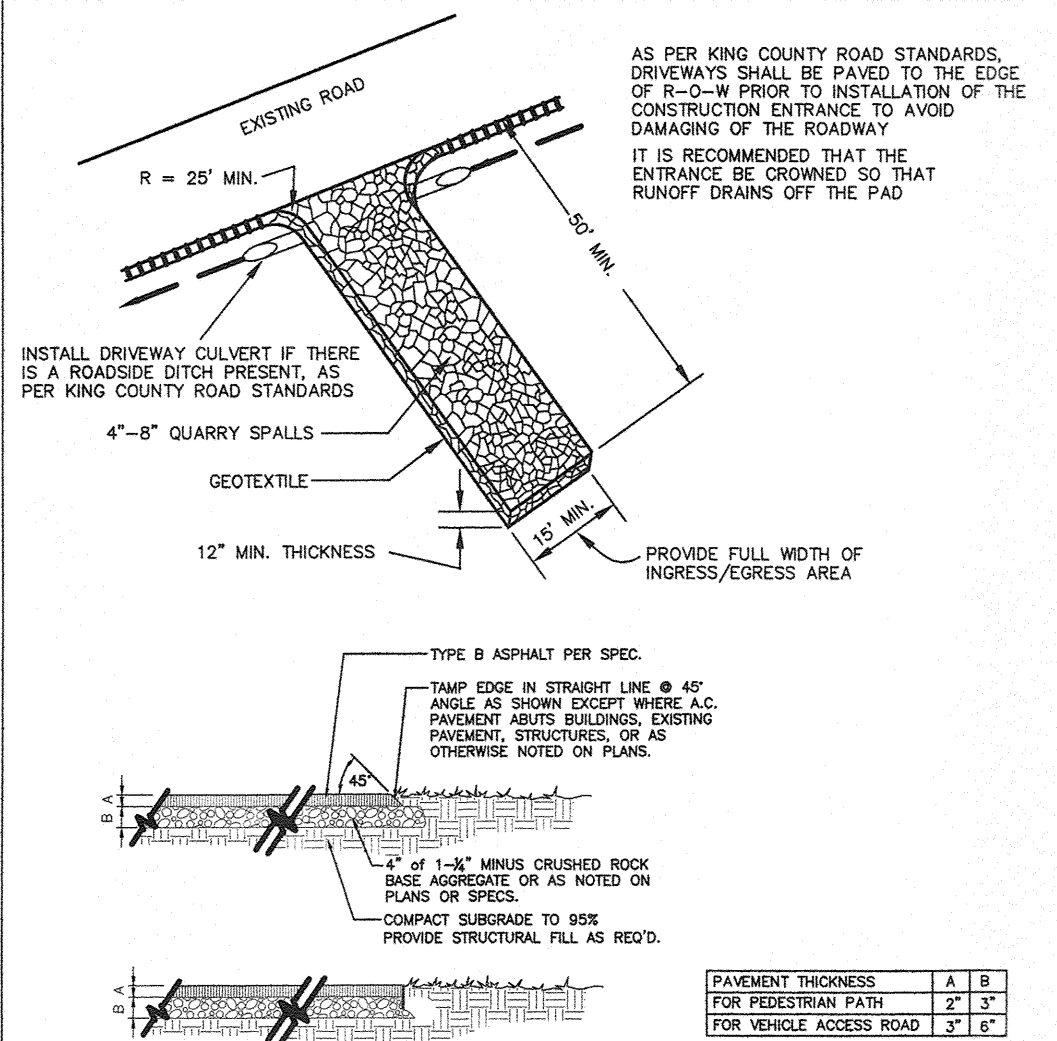
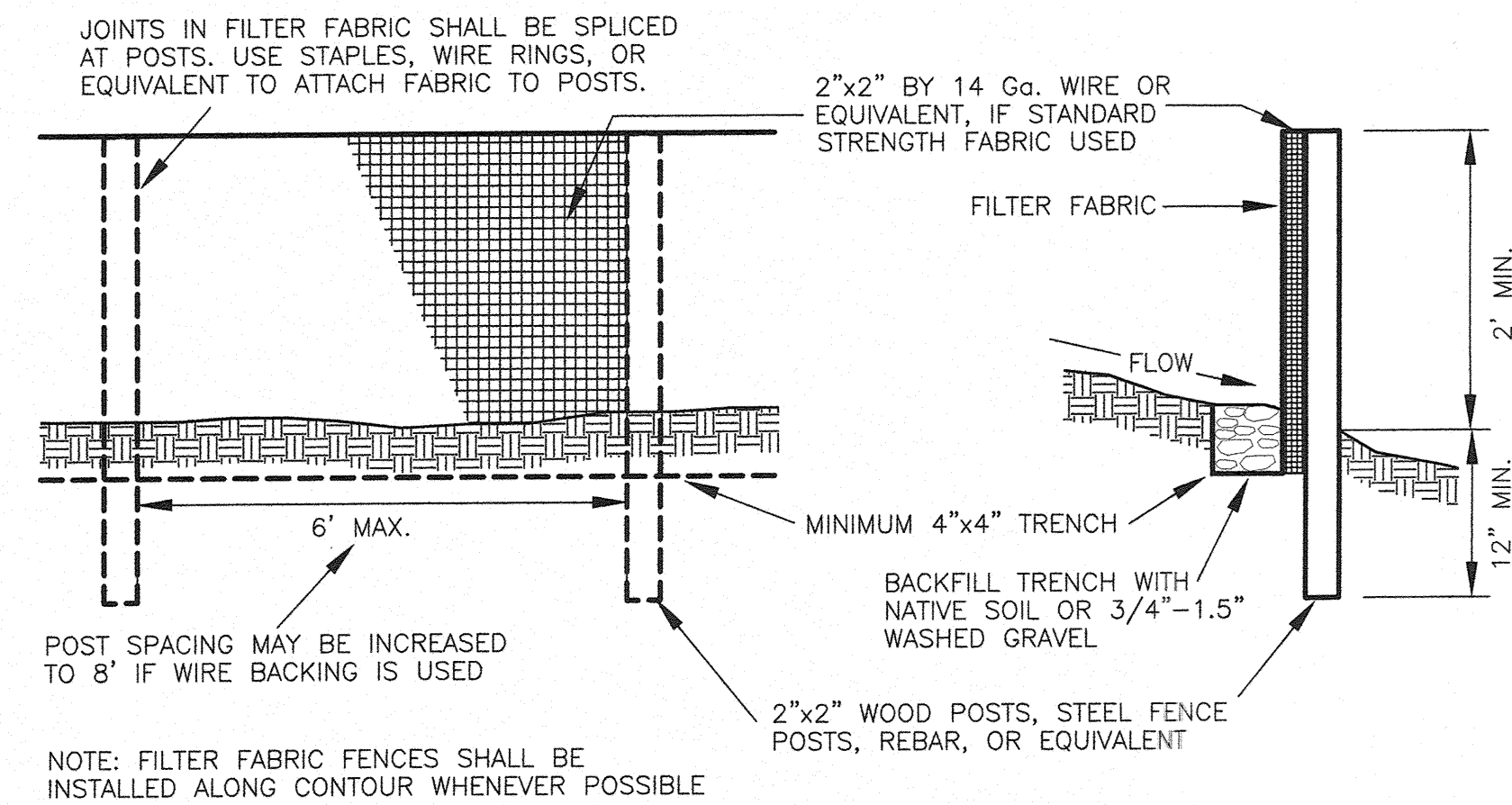
Parcel Number: 2424059124
Taxpayer: Yakor LLC

HEIGHT MEASUREMENT	
POINT	ELEV
A	1096
B	1095.8
C	1095.2
D	1094.3
E	1094.3
F	1095
G	1096.3
H	1096.4
I	1096
J	1095.4
K	1096
L	1098
M	1099
N	1100
O	1101
P	1101.9
R	1102.6
S	1102
T	1100.6
U	1099.4
V	1098.3
W	1100
X	1099
TOTAL	25253
TOTAL POINTS	/ 23
AVG GRADE EL.	1097.9
MAX EL. ALLOWED	+ 35
	= 1132.9
PEAK EL.	404.75
	- 370.33
AVG HT.	= 34.42

VICINITY MAP	
TREE TABLE	
TREE	SPECIES
DIAMETER	RETAIN?
1	CEDAR
2	ALDER
3	MAPLE
4	CEDAR
5	CEDAR
6	DOUGLAS FIR
7	DOUGLAS FIR
8	MAPLE
9	MAPLE
10	ALDER
11	MAPLE
12	MAPLE
13	MAPLE
14	ALDER
15	MAPLE
16	MAPLE
17	CEDAR
18	DOUGLAS FIR
19	MAPLE
20	MAPLE
21	MAPLE
22	CEDAR
23	CEDAR
24	HEMLOCK
25	MAPLE
26	HEMLOCK
27	MAPLE
28	MAPLE
29	MAPLE
30	MAPLE
31	MAPLE
32	MAPLE
33	MAPLE
34	MAPLE
35	ALDER
36	HEMLOCK
37	MAPLE
38	MAPLE
39	MAPLE
40	MAPLE
41	MAPLE
42	CEDAR
43	HEMLOCK
44	MAPLE
45	HEMLOCK
46	ALDER
47	MAPLE
48	MAPLE
49	MAPLE
50	MAPLE
51	ALDER
TOTAL NUMBER 940	
DIA. INCHES	
DIAMETER INCHES 702	
TO RETAIN	
PERCENTAGE OF 74.68%	
INCHES RETAINED	

FLOOR AREA RATIO:	
MAIN FLOOR	3,498 S.F.
UPPER FLOOR	2,288 S.F.
GARAGE	688 S.F.
LOWER FLOOR	1,965 SF
TOTAL	8,439 S.F
LOT SIZE	35,283 S.F.
FLOOR AREA RATIO	23.9%

GREENSCAPE COVERAGE:	
PRIVATE ACCESS	700 SF
DRIVEWAY -	525 SF
TOTAL	1225 SF
TOTAL FRONT SETBACK	7000 SF
PERCENTAGE OF FRONT SETBACK	82.5%



SITE PLAN
SCALE: 1"=20'-0"



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PROJECT:
Yakor LLC Siteplan
LOCATION:
PARCEL 2424059124 BELLEVUE, WA 98005

DRAWN BY: AVA	
DATE ISSUED: 05/20/16	
MODIFIED BY: AVA	
ENGINEER: ANTSEY	
REVISION 19/13/16	
REVISION 2 12/12/16	
Project No.: 16121	
SHEET	
OF	

779 RAINIER AVE. N. SUITE A200 RENTON, WA 98057
PH: (206) 838-9250 E: admin@urbandesigns.us



Sword Fern



Dagger-leaf Rush



Elderberry



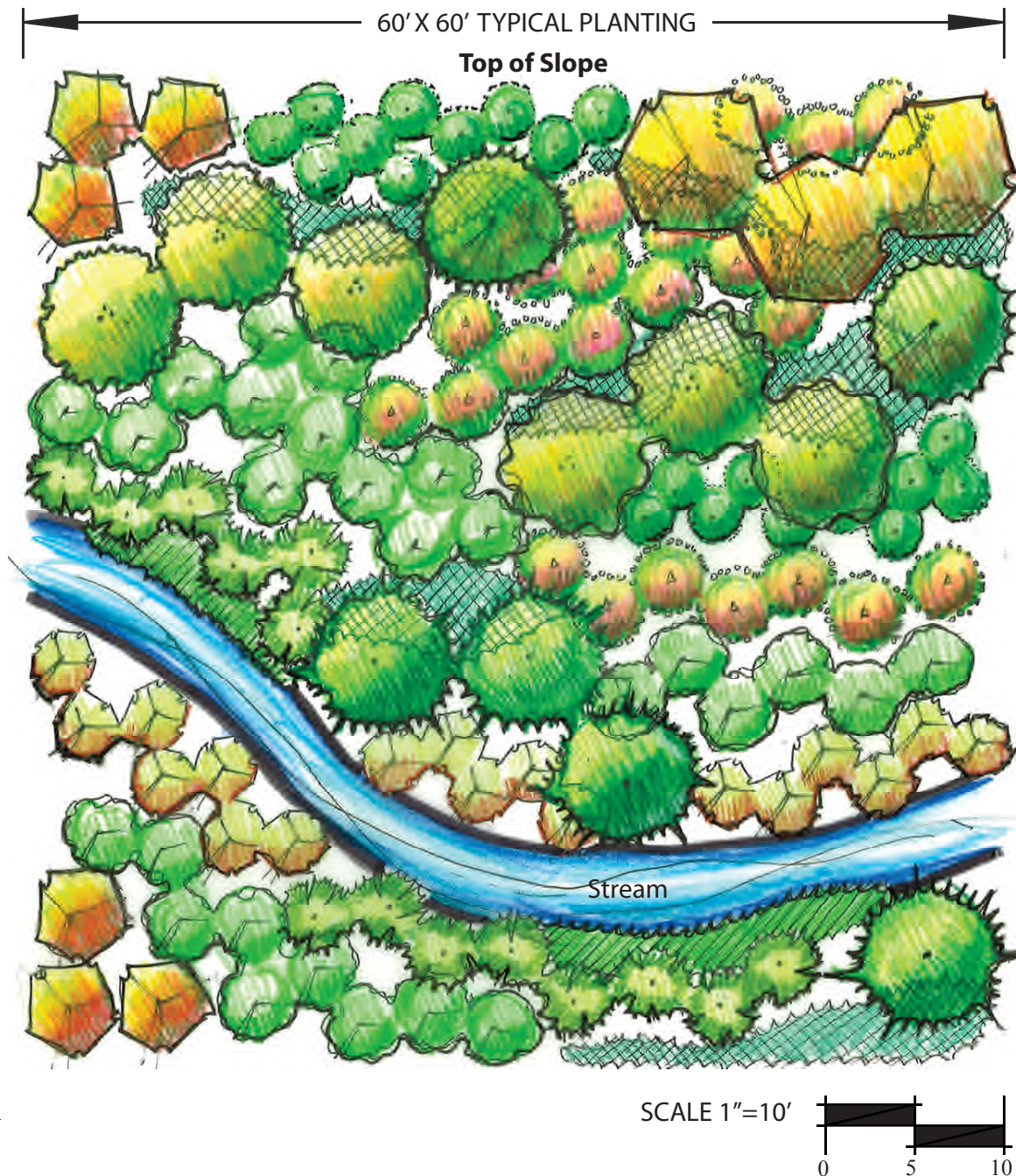
Wild Ginger

Stream Buffer

Gradual Slope Planting Template
for *Sunny* and *Shady* Sites

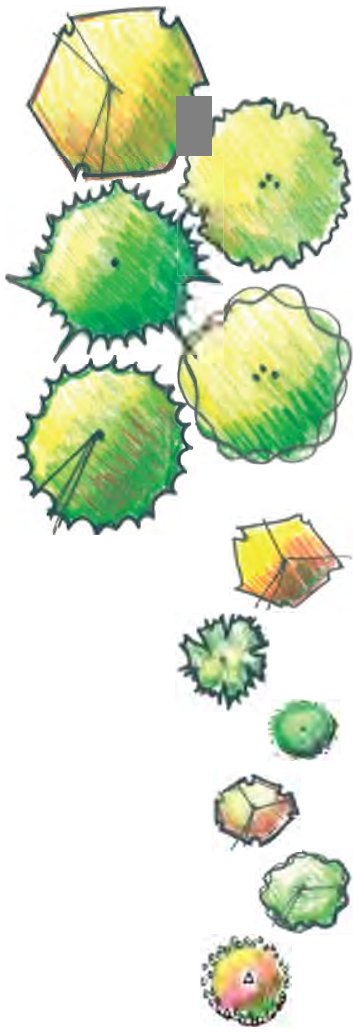
D2

STREAM BUFFER GENTLE SLOPE PLANTING TEMPLATE



Unlike flat stream banks, areas adjacent to streams that are gradually sloping are less susceptible to inundation or flooding. During high flood events, streams may “jump” their banks, so the plants directly adjacent to the stream must be adapted to handle flash flood events, while the plants farther away from stream need to be more tolerant of drier conditions. See the Section on *Streams* in *Chapter One* and the City’s Critical Areas Ordinance for additional information.

PLANT LEGEND FOR **SUNNY** SITES



LATIN NAME/ COMMON NAME

TYPICAL SPACING/ AVERAGE HEIGHT

CHARACTERISTICS

TREES

Acer macrophyllum/
Big-leaf maple

9 feet on center/
75 feet

Yellow fall color. Provides understory shade, largest leaf of all maples

Alnus rubra/
Red alder

9 feet on center/
60 feet

Vigorous grower, provides cover quickly for other plants

Picea sitchensis/
Sitka spruce

9 feet on center/
125 feet

Bluish-green foliage year round wildlife food

Prunus emarginata/
Bitter cherry

9 feet on center/
40 feet

Blossoms in spring, red edible berries in summer, wildlife food

Pseudotsuga menziesii/
Douglas-fir

9 feet on center/
150 feet

Highly adaptable, fast grower

SHRUBS

Corylus cornuta/
Beaked hazelnut

6 feet on center/
11 feet

Edible acorn, wildlife food. Small understory tree, yellowish fall color

Lonicera involucrata/
Black twinberry

4.5 feet on center/
8 feet

Attractive yellow/red flowers with dark twinberries

Physocarpus capitatus/
Pacific ninebark

4 feet on center/
11 feet

Orange shredded bark, big white blossoms

Rubus parviflorus/
Thimbleberry

4 feet on center/
8 feet

Delicious edible berries, fast grower, likes sun

Rosa nutkana/
Nootka rose

4.5 feet on center/
8 feet

Wild rose, pink flowers, bright red rosehips

Symphoricarpos albus/
Snowberry

4.5 feet on center/
5 feet

White inedible berries, proven performer in tough conditions

GROUNDCOVERS & PERENNIALS

Arctostaphylos uva-ursi/
Kinnikinnick

*24 in. on center/
6-8 in.

Evergreen groundcover, great for rockeries and full sun areas

Polystichum munitum/
Sword fern

*24 in. on center/
5 feet once mature

Semi-evergreen fern, highly adaptable

Epilobium angustifolium/
Fireweed

*24 in. on center/
1.5-2 feet

Big purple flowers on a tall stem

EMERGENTS

Juncus ensifolius/
Dagger-leaf rush

12 in. on center/
2 feet

Dagger shaped leaves, flat iris-like

Scirpus acutus/
Hardstem bulrush

12 in. on center/
6 feet

Important food and habitat for waterfowl and aquatic mammals

Scirpus microcarpus/
Small-fruited bulrush

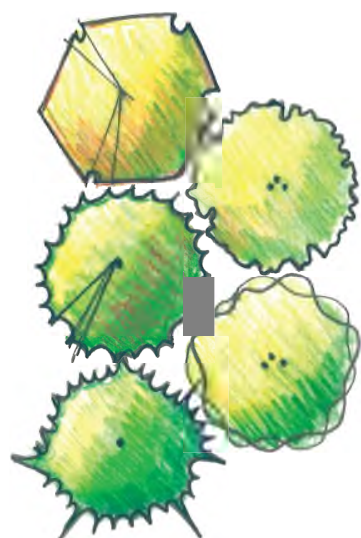
12 in. on center/
4.5 feet

Interesting ornamental quality and bloom

* Indicates plants are to be triangularly spaced for the area shown.
See page 23 for triangular spacing.

D2-Sun

PLANT LEGEND FOR SHADY SITES



LATIN NAME/ COMMON NAME

TYPICAL SPACING/ AVERAGE HEIGHT

CHARACTERISTICS

TREES

Acer macrophyllum/
Big-leaf maple

9 feet on center/
75 feet

Yellow fall color. Provides understory shade, largest leaf of all maples

Alnus rubra/
Red alder

9 feet on center/
60 feet

Vigorous grower, provides cover quickly for other plants

Rhamnus purshiana/
Cascara

9 feet on center/
20 feet

Fall color, small understory tree, horizontal branching

Thuja plicata/
Western red cedar

9 feet on center/
150 feet

Fragrant, adaptable to many sites

Tsuga heterophylla/
Western hemlock

9 feet on center/
125 feet

Fairly dry to wet sites, shade tolerant

SHRUBS

Cornus sericea/
Red-osier dogwood

4.5 feet on center/
15 feet

Stem provides red color, white flower in spring, berries in summer

Mahonia aquifolium/
Tall Oregon grape

3.5 feet on center/
5 feet

Yellow flowers in Spring; edible dark purple berries

Oemleria cerasiformis/
Osoberry

4.5 feet on center/
10 feet

Berries attract birds, first shrub to leaf out in spring

Ribes bracteosum/
Stink currant

3.5 feet on center/
8 feet

Clusters of purple fruit, spicy-scented leaves, loves moist shade

Sambucus racemosa/
Red elderberry

6 feet on center/
15 feet

Edible berries, fast grower, graceful form with age

Viburnum edule/
Highbush cranberry

4.5 feet on center/
9 feet

Vigorous grower in wet places, great fall color, red cherry-like fruits

GROUNDCOVERS & PERENNIALS

Arctostaphylos uva-ursi/
Kinnikinnick

*24 in. on center/
6-8 in.

Evergreen groundcover, great for rockeries and full sun areas

Asarum caudatum/
Wild ginger

*24 in. on center/
6-8 in.

Tough groundcover, great for planting under shrubs and trees

Oxalis oregana/
Redwood sorrel

*24 in. on center/
1 foot

Great shade-loving groundcover, clover-shaped leaves, white flowers

EMERGENTS

Juncus ensifolius/
Dagger-leaf rush

12 in. on center/
2 feet

Dagger shaped leaves, flat iris-like

Scirpus acutus/
Hardstem bulrush

12 in. on center/
6 feet

Important food and habitat for waterfowl and aquatic mammals

Scirpus microcarpus/
Small-fruited bulrush

12 in. on center/
4.5 feet

Interesting ornamental quality and bloom

* Indicates plants are to be triangularly spaced for the area shown. See page 23 for triangular spacing.

D2-Shade